INSTRUCTIONAL DESIGN AND ASSESSMENT

Use of an Online Game to Evaluate Health Professions Students' Attitudes toward People in Poverty

Carriann E. Richey Smith, BS, PharmD, Priscilla Ryder, PhD, Ann Bilodeau, MS, Michele Schultz, MPAS

Butler University College of Pharmacy and Health Sciences, Indianapolis, Indiana

Submitted July 23, 2015; accepted November 20, 2015; published October 25, 2016.

Objective. To determine baseline attitudes of pharmacy, physician assistant studies, and communication science and disorders students toward people in poverty and to examine the effectiveness of using the online poverty simulation game SPENT to affect these attitudes.

Methods. Students completed pre/postassessments using the validated Undergraduate Perceptions of Poverty Tracking Survey (UPPTS). Students played the online, open access, SPENT game alone and/or in pairs in a 50-minute class.

Results. Significant improvements in scale scores were seen in students after playing SPENT. Quartile results by prescore indicated that students with the lowest attitudes towards patients in poverty improved the most. Results suggested that most students found the experience worthwhile for themselves and/or for their classmates.

Conclusions. The results of this study suggest SPENT may improve perspectives of undergraduate pharmacy and other health professions students.

Keywords: poverty, simulation, serious game, student attitude, inter-professional education

INTRODUCTION

SPENT is an online simulation developed and donated to the Urban Ministries of Durham by McKinney Advertising. Originally created to engage new donors and volunteers, SPENT has more than four million total plays and has gone viral through Facebook and other social media channels.¹ It is used to raise awareness of the complex issue of poverty. In 2012, SPENT received awards recognizing it as an effective marketing tool that “incorporates outstanding creativity, insightful communications strategy, and the market results to prove it worked.”² There have been no publications, however, regarding the use of this award-winning game to expose university students to life for people in poverty.

Poverty affects more than 46 million people (15% of the US population) residing in the United States.³ Evidence suggests that professionals in servant roles, such as health care providers, would be more effective if they had a nonjudgmental attitude toward people living in poverty.⁴⁻⁶ Educators have a responsibility to understand knowledge and attitudes of students regarding people in poverty and offer opportunities to understand the structural

challenges for these clients. Students entering all health professions such as pharmacy need to recognize the challenges these clients encounter regarding healthy behavior and access to health care.

Attribution theory assumes that people try to ascertain why people do what they do to explain their behavior.⁷ This theory provides a framework for how students may respond to individuals in poverty. Attitudes toward the poor are often categorized as structural/societal-based or individual/personal-based.⁷ Structural attitudes suggest that individuals enter and remain in poverty because of problems and/or barriers placed by society, such as a lack of opportunities. Individual or personal attitudes suggest that individuals are responsible for their situation, as a result of, for example, laziness or personal character flaws.⁸ Students in health care may have attitudes that express cynicism or apathy, adopt stereotypic assumptions, or overestimate the ability of hard work to lift people out of poverty.⁹ Weiss studied graduating social work students regarding their attitudes and interest in working with the poor.¹⁰ Across cultures, those students less inclined to perceive poverty as lack of individual motivation, effort, and responsibility were more inclined to view expansion of state provisions as the best way to deal with poverty. These students also had more desire to engage in policy practice and advocacy and were more likely to indicate an interest in working with the poor. Simulations

Corresponding Author: Carriann E. Richey Smith, Butler University, College of Pharmacy and Health Sciences Building, Room 107, 4600 Sunset Ave., Indianapolis, IN 46208. Tel: 317-940-8376. E-mail: crichey@butler.edu

were effective in changing attitudes toward people in poverty among nursing students, and family and consumer sciences students.^{11,12} As early as 1970, Samuel A. Livingston was able to demonstrate the effectiveness of a role playing simulation game called “Ghetto” in improving high school students’ understanding of the life in inner city neighborhoods.¹³

Students in health care may also lack sufficient knowledge about the current extent of poverty.⁹ Bruno et al studied the use of videotaped patient stories to determine if this experience would impact students’ knowledge and attitudes regarding health care for the insured and uninsured.¹⁴ After watching the patient videos, students reported they were more likely to reflect a desire to be personally involved with caring for underserved patients.

Several authors have commented that the use of games and simulations encourage a high level of active learning. Butler suggested that simulations and games present the learner with a unique approach to learning.¹⁵ Further, he suggested that these learning tools “present the student with an approximation of certain parts of society. By acting in this setting, the player can begin to see the consequences of his action. . .” Simulations are different from games in that they involve role playing in a life-like environment to experience the environment. Butler continued that simulations are especially helpful when teaching about social structure and developing awareness.¹⁵ Kumar and Lightner confirmed that games and simulations help students build a vocabulary that social constructivists believe is central to learning about this type of content.¹⁶ Petkov et al noted “traditional instruction methods lack the motivational incentives needed to keep today’s students engaged in the instructional content.” Their article discussed how technology-dependent students may benefit from technology-based games with serious content (serious games) and these should be incorporated into traditional instruction.¹⁷ Cain and Piascik suggested that serious gaming can be a valuable tool in training pharmacy students.¹⁸

A review of the literature showed the use of reflection to assess student learning and scales designed to assess attitudes toward poverty. Most current studies and scales are based on an original scale developed by Atherton et al.¹⁹ The Atherton scale provides 37 statements about living in poverty and asks participants to indicate their level of agreement. Another scale developed by Yun et al, the Attitude Toward Poverty Scale (ATP) short form, which consists of 21 questions, is in several published studies of poverty simulations involving nursing students.^{8,9,20} Blair et al published a modification of Atherton’s scale designed for use with undergraduate students.²¹ The researchers chose this scale because it is

validated and designed for undergraduate students. This 39-item scale contained in the Undergraduates Perceptions of Poverty Tracking Survey (UPPTS) was used in this research project.²¹

Prior to our study, various methods were used at our institution to expose students to life for those in poverty. Students were introduced in both preprofessional and professional training programs of health professionals on the campus. These methods included visits to clinics serving disadvantaged patients, a live role-playing poverty simulation conducted in a large group setting, and classroom worksheet activities related to underserved patients such as learning about community resources and assistance options. Students were then asked to write reflections on their experiences. The authors felt that there were two pieces missing with these methods: no standardization across disciplines to allow for inter-professional education and no objective way to measure students’ attitudes before and after the activities. After reviewing the available tools, the SPENT game was found to meet the criteria of allowing simultaneous participation by large numbers of users in a 50-minute class time, and, as a computer simulation game, it was thought it would appeal to undergraduate students. The pharmacy program at the institution is a 2-year preprofessional and 4-year professional. However, pharmacy faculty members teach one course to introduce students to the profession during each preprofessional year. The preprofessional students for this study were exposed to SPENT during their second preprofessional year. It was conducted in the third year (first professional year) of a physician assistant master’s program and the senior or final year of a preprofessional degree in communication sciences and disorders.

The primary aim of this study was to measure undergraduate health profession students’ attitudes toward poverty before and after playing the SPENT game and to determine whether any demographic characteristics ameliorated student responses. The 2016 Accreditation Council for Pharmacy Education (ACPE) Standards include a focus on attitudes, leadership and ethical behavior. In the area of social, behavioral and administrative sciences, Appendix B mentions inclusion of social and economic factors of the US health care system, public and population health, and pharmacy as a patient-centered profession. The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), the body responsible for accrediting Physician Assistant programs, also requires schools to educate students on the effect of socioeconomic position on patients.²² The Communication and Science Disorders program is not specifically accredited by a professional body, since it is an undergraduate, rather than professional, degree. The use

of this free, open-access tool may meet many of these accreditation criteria and allow for interprofessional education in administrative or clinical coursework.

DESIGN

This study was conducted at a private Midwestern, Liberal Arts University, provides professional education to pharmacy, physician assistant students and preprofessional training for students pursuing careers in communication disorders. Students in four courses participated in the project during the 2013-2014 academic year. These included the following programs: pharmacy (both second preprofessional year and first professional year in this 0-6 year pharmacy school), physician assistant, and communication science and disorders.

Following the completion of the presurvey as pre-class homework, students played the SPENT game and participated in either a class discussion or class blog regarding the game. The discussion was not standardized across classes. Students were encouraged to initiate their thoughts and the discussion was based on the students' reaction to the experience. The game took approximately 10 to 25 minutes to complete depending on the decisions the student made. The game and discussion were easily incorporated into a standard 50-minute class. Facilitators asked students to make notes of specific decisions and then use them in the discussion. For example, students were asked which job they selected among three options.

After class, students were asked to complete the post-survey within one to two weeks. The postsurvey included questions regarding students' perspectives of the game and its value. In all pharmacy classes, students received points for attempting the assignment (entering a valid ID number), but the assignment itself was not graded. Students who did not wish to participate could request an alternative assignment, but no students selected this option. Other classes encouraged participation but did not award points. Class discussions were not standardized between instructors. This study was deemed exempt from review by Butler University's Institutional Review Board.

The poverty simulation used in this project is called SPENT, an online simulation (www.playspent.org). The game can be played on any computer or tablet. Handheld devices may be able to play the game but have limitations. The game requires players to survive on \$1000 a month. Once the player initiates the game, he or she is first asked to secure a job. The player may choose between three employment options: warehouse worker, restaurant server, or temporary clerical worker. One must pass a typing test to secure the clerical position. Once employment is secured, the player must decide whether to purchase health

insurance through the employer. Following this decision, the player is asked to select a location to live in relationship to employment location. With each decision, the player is provided a potential result of his or her decision. This result provides details about how the decision would affect an individual living in poverty.

After these basic needs are met, additional scenarios are presented to the participant including accidents, school needs, and opportunities for additional sources of income. Each decision requires a choice between what one might want to do and what one may have to do to make ends meet. The game presents a variety of competing priorities that players must choose between to address situations that might be encountered by people in poverty. Choices and consequences vary with each play of the game so students rarely encounter the same scenario regardless of number of times they play. The game ends when the player runs out of money or completes the month with money left over. Those who are able to complete the month are asked to consider if they have enough money to pay next month's rent, due at the beginning of the month. The game simulates a working, poor, single-parent family with income between 100 and 133% of the Federal Poverty Level.

The 39-item UPPTS asks the respondent to indicate agreement using a Likert scale to a series of statements regarding living in poverty.¹⁸ The scale is validated for use in undergraduate students.¹⁸ This scale has been used in other studies of student attitudes, but findings have not yet been published. Scores range from 30 to 195. Higher scores suggest a more empathetic attitude toward people living in poverty. Table 1 lists sample questions from the scale. Surveys were sent to the students via a Survey Monkey (SurveyMonkey, Palo Alto, CA) link. Pre/postsurveys used the same scale to assess attitudes toward people in poverty. In addition to the scale, the presurvey collected demographic information about students, their work and volunteer experience, and experience with public benefit programs. The postsurvey asked closed and open-ended questions. Reflective, open-ended questions included how their anticipated profession could help people in poverty and whether the exercise changed their comfort level in working with people in poverty. In addition, students were asked to reflect on the value of the exercise.

The primary outcome of this study was change in survey scores from pretest to posttest. Descriptive statistics (frequencies of categorical variables and distributions for continuous-type variable) were generated. Bivariate comparisons between the primary outcome and other variables were made using *t* tests and correlation. Score changes within groups were assessed by paired *t* tests. To

Table 1. Example Questions from the Undergraduate Perceptions of Poverty Tracking Survey (UPPTS)

Attitudes About Welfare Programs
Welfare makes people lazy
Welfare recipients should be able to spend their money as they choose ^a
Poor are Different from the Nonpoor
I believe poor people create their own difficulties
I believe poor people have a different set of values from other people
Do More
I feel that I could personally make a difference in the lives of the poor ^a
It upsets me to know that people are poor ^a
Belief in Equal Opportunity
If poor people worked harder, they could escape poverty
Any person can get ahead in this country
A Belief in Basic Rights
Everyone regardless of circumstances should have health care ^a
Everyone regardless of circumstances should have enough food to eat ^a
Attitude About Resources
Lack of education is a major challenge for the poor ^a
Lack of social support is a major challenge for the poor ^a

^aItem reverse scored

compare score change between groups, independent *t* tests or analysis of variance (ANOVA) (using Bonferroni's correction for multiple comparisons) was used. Quantitative analyses were conducted using SPSS, v19.0 (SPSS Inc., Chicago, IL). Qualitative analysis of open-ended comments was conducted using grounded theory analysis to allow themes to emerge inductively from the data.²³

EVALUATION AND ASSESSMENT

Three hundred seventy-three students were enrolled in all classes. Three hundred fifty-four students (94.9%) completed at least one survey. We were able to match pre/postscores for 306 (84.4%) students. Of those, 240 were pharmacy program students including 127 "sophomores" (second preprofessional year) and 113 "juniors" (first year of professional doctoral program). In addition, 36 students were professional physician assistant program "juniors" (first year of professional master's program) and 30 students were seniors in the communication sciences and disorders program.

Among the 306 students, the average presurvey score was 132.1 and the average postsurvey score was 136.2. The overall increase in score was 4.1 points, a significant increase ($t_{305} = -8.03$, $p < 0.0005$). Table 2 provides pre/postsurvey scores for the student groups. To investigate

whether overall change was a result of larger scale change in one group (highly empathetic or less positive), presurvey scores were divided into quartiles. Table 3 shows the change in score for each quartile. The lowest quartile, having the most negative attitudes toward the poor, produced the greatest change in scores from presurvey to postsurvey (from 108.8 to 114.70, t_{76} , $p > 0.0005$), with each quartile having smaller changes in scores. The change in scores was significant for each quartile; however, there was no difference in the amount of change between quartiles.

There were no differences between class and discipline in presurvey scores, postsurvey scores, or magnitude of change. Among demographic factors examined (e.g., age, religion, area of origin, family income, family's receipt of public assistance), baseline scores differed significantly only by gender. In general, those who started with a lower (less empathetic) score had a higher absolute change in score magnitude. Females were more likely to have significantly higher scores at baseline (mean score = 133.9 SD = 16.7 vs 126.6 SD = 21.3; $t_{138} = -3.03$, $p = 0.001$) and at the postsurvey ($t_{127} = -2.90$, $p = 0.004$); however, there was no significant difference in magnitude of score between genders.

During class discussion, students were asked why they selected the job they chose in the simulation. Students often picked positions because of past experience or hours that would work best for the family in the scenario, which allowed the class to discuss the ease of changing one's situation. Discussion followed to identify other jobs in the local community that might be temporary, hourly, without group health benefits, etc., which further allowed students to link the experience to real life. Students were also questioned about the easiest and most difficult decisions made during the game. Students most often reported that decisions about children were the hardest and often commented on recognition of sacrifices that their parents made for them. Students were also asked to respond to several statements to capture their experience gained from the exercise. These endorsements are captured in Table 4.

Qualitative analysis of open-ended, reflective responses identified eight key themes. Table 5 outlines these themes and provides examples of student comments. Positive themes centered around use of the game as being a good experience, with the most common descriptor being "eye opening." Students felt that the experience would be particularly important for those becoming health professionals. Themes that were not explicitly positive (neutral or negative) were from students who felt they already knew about poverty or felt that the simulation was unrealistic ("This is a stimulation, not real

Table 2. Description of Participants and Report of Change in Scores (N=306)

Variable	Physician Assistant (n=36)	Communication Science Disorder (n=30)	Pharmacy (Preprofessional phase) (n=113)	Pharmacy (professional phase) (n=113)	Total
Male gender, %	13.9	3.3	29.9	33.6	26.8
Age, Mean (SD)	22.1 (3.0)	21.3 (0.5)	19.7 (1.3)	20.7 (1.3)	20.5 (1.8)
White race/ethnicity, %	94.4	96.7	83.5	92.9	89.5
Family Income, %					
>\$25 000	5.6	3.3	3.9	3.5	3.9
\$25 000-\$99 999	19.4	30.0	29.9	28.3	28.1
\$100 000-\$199 999	38.9	23.3	32.3	40.7	35.3
\$200 000 or more	19.4	36.7	12.6	17.7	17.6
Geographic Origin, %					
Urban	8.3	3.3	4.7	7.1	5.9
Suburban	63.9	70.0	58.3	69.9	64.4
Rural	27.8	26.7	26.8	22.1	25.2
Student personally experienced poverty, %	5.6	10.0	1.6	5.3	4.2
Family received any public assistance, %	11.1	10.0	2.4	4.4	4.9
Student thought activity "very worthwhile," %	19.4	30.0	25.2	29.2	26.5
Pretest Score, Mean (SD)	136.4 (15.1)	135.3 (18.4)	129.2 (19.1)	133.2 (17.7)	132.1 (18.2)
Posttest Score, Mean (SD)	140.2 (16.0)	141.8 (20.3)	134.6 (19.6)	135.4 (19.2)	136.2 (19.2)

Note: Some items do not add to 100% because of missing values

life. This is not what it really is like to be poor"). Four students made negative comments about poor people ("I feel that there are some people I will meet that will really need government assistance, but there will still be some ripping off the system that I will have to serve"). Another neutral theme was that some students felt they did not need the experience for themselves, but felt it would be good for their inexperienced or less sympathetic classmates.

Answers to the open-ended question "How has this exercise changed your comfort level for interacting with people in poverty?" were postcoded into categories indicating positive or neutral/negative responses. There were no frankly negative results to this question (ie, no one reported that their comfort level decreased). The most negative of the responses indicated that there might be better ways to learn about people in poverty ("The online simulation can only go so far. If we went out in the community

to a food bank or something along those lines, I think the students would get more out of it"). Among the 239 students who responded to this question, 60.7% indicated that their comfort level had improved, and 39.3% said that their comfort level had not changed. Male students were slightly less positive than their female counterparts (53.1% vs 68.2, Chi-square=5.14, $p=0.023$). Those from urban areas were marginally less likely to report a change in comfort level than those from suburban or rural areas. (Chi-square=3.88, $p=0.049$).

Responses to the question "What makes you give the response above?" (to the question "How worthwhile was this activity?") were also postcoded to correspond to the eight themes identified in qualitative analysis. Two hundred forty-four students provided answers to the question, more than half (52%) indicating that it was a positive experience. Not included in this total, 11.5% used the term "eye-opening" in their answers, 5.7% students mentioned their eventual health-related career in their positive answers, and 0.06% thought that the experience would be good for other students; thus 72.7% were entirely positive about the experience. Only 1.6% of responses could be categorized as entirely negative.

Responses were dichotomized as entirely positive or those containing some neutral or negative element (eg, "I didn't feel that the assignment addressed some of the more difficult things that people in poverty experience,"

Table 3. Changes in Mean Scores by Quartile (N=306)

Quartile	N	Mean Scores				t Statistic	p Value
		Pretest	Posttest	Change			
1 (lowest)	77	109.7	115.6	5.9	-4.93	<0.0005	
2	79	126.6	131.0	4.4	-4.01	<0.0005	
3	80	138.4	142.0	3.6	-3.59	0.001	
4 (highest)	70	155.7	158.3	3.6	-2.64	0.010	
Total	306	132.1	136.2	4.1	-8.03	<0.0005	

Table 4. Student Endorsements

	%
Results of the postsurvey revealed the following student endorsements:	
Living in poverty is emotionally hard and stressful.	79.1
I learned about the difficult choices individuals in poverty have to make.	77.8
I understand why a person may decide not to purchase insurance.	74.2
I feel more understanding for those less privileged.	64.1
I understand why preventative care might not be a priority to a person living in poverty.	63.4
Living in poverty is more difficult than I thought.	62.4
Only a small number of students agreed with the following statements:	
I learned about available government programs to help low income persons.	21.2
I did not learn anything from this experience.	3.6
It was impressive to see the following endorsement of the SPENT experience:	
Very worthwhile	26.5
Worthwhile	54.9
A little worthwhile	14.1
Not worthwhile	2.3

“My life experiences thus far have taught me all that the SPENT activity attempts to teach,” “I think it showed a different side of life that many of us don’t get to see, but I also think it is hard to transfer this and picture people actually living day-to-day like this just because it was on-line”). There were no significant differences among gender, race, or personal experience of poverty for those responses which were entirely positive. Pharmacy students were marginally less positive than others (63.6% vs 77.5%, Chi-square=3.70, $p=0.055$), and suburban students were nearly more positive than urban or rural students (78.9% vs 67.5%, Chi-square=3.80, $p=0.05$).

DISCUSSION

This is the first investigation to show changes in attitudes of health profession students toward people in poverty after playing an online poverty simulation game. Overall, students displayed significant improvement regarding their attitudes toward poverty after playing the SPENT game. This supports the findings by Butler as well as Kumar and Lightner that simulations are effective in teaching about social structure, developing awareness, and building vocabulary.^{15,16} While we do not know if this equates to a true behavioral change when interacting with clients, we suspect that the true response might actually be more positive than the quantitative change indicates. All groups of students showed significant

change, whether differentiated by gender, presurvey score, or any other factor tested, indicating that improvement in empathy was not limited to any particular group of students examined. The finding that females were more empathetic than males matches the gender difference findings of Blair.²¹ Blair found that students from families with less income had more positive attitudes, while we did not find a difference.

Prior to using SPENT, the same faculty members in the pharmacy classes had assigned students to complete community-based experiences for 1-3 hours in a medical clinic for multiple years. Despite the student comment that a real-life experience would be better, that was not found to be the case. Several students reported negative experiences: “boring,” “they didn’t really get to see anything,” “a waste of time.” Faculty members consciously made a decision to switch to this experience to allow all students to have an equal experience. External outreach is still strongly encouraged throughout the university. Pharmacy students are encouraged to follow up with faculty members to connect to available opportunities and to volunteer in a student run clinic.

Individual student reflections indicated that some students were significantly inspired by the SPENT game. This confirms findings by Patterson that the use of a poverty simulation may help students realize stereotypic assumptions and their overestimation of the role of hard work.⁹ The interest in this game on social media and results from the use with Urban Ministries of Durham suggests that it resonates well with those who want to improve attitudes toward those in poverty. It appears the classroom experience produces a similar reaction. Further studies are needed to examine if combining this activity with information about knowledge of the extent of poverty along with opportunities to assist patients (eg, subsidy programs and community resources) increases student knowledge of how to respond to the financial circumstances of their patients.

We identified three main limitations of the study and they relate to the application of the quantitative data. The results are significant; however, we do not know how the numeric change equates to any true attitude or behavioral change or whether the change is temporary. Because there were no control groups, we cannot determine if changes in score were a result of the game. Also, as there are no previously published studies on the SPENT game in this context, we cannot compare our results to determine if they were typical. Change may have been partly a result of test-retesting, or social desirability, as the intention was for students to have more positive attitudes.

Given previously collected qualitative data that demonstrated impact of the game based on individual

Table 5. Qualitative Themes and Student Reflection Example Comments

Theme	Example Reflection
A good experience	<p>"I thought this was a great learning technique!"</p> <p>"... I think it has a lot of great potential. . . . I think it would ground some students who need to see that everything isn't always so black and white and that a lot of people don't have the basic necessities of life."</p> <p>"There should be more activities like this, it's necessary."</p> <p>"This would be a really great thing to give freshman and other college students because it motivated me to volunteer and try to help and I wish I had had this earlier and had learned about poverty this realistically and directly earlier. I thought I knew about the world and society but I was wrong."</p> <p>"It forces people to step out of their everyday life and see how difficult living dollar to dollar is."</p>
Especially important for those becoming health professionals	<p>"I am glad this is a topic we are discussing in P[hysician] A[ssistant] school. More health care professionals need to be aware of the everyday difficulties that come from not having enough money and more compassion for people stuck in the cycle of poverty."</p> <p>"I think it was a great activity for all, and very important for future pharmacists because it keeps us all committed to our work and our patients."</p> <p>"I feel more confident about talking to patients about healthcare."</p>
Eye-opening	<p>"Seeing the challenges faced daily by the economically disadvantaged was an eye opening experience and one presented in a very approachable way."</p> <p>"It opened my eyes to poverty."</p> <p>"I still have some of the thoughts toward the poor that I had before I participated in this activity, but this activity has started to open my eyes whereas I didn't before."</p>
I already know about poverty	<p>"I have already spent copious amounts of time with poor people at my job back home, so most of the information I was actually already aware of."</p> <p>"I feel a little disrespected. I feel that in this survey that it assumes that NOBODY taking this survey grew up in a poor family."</p> <p>"My family is going through this now."</p>
I didn't need it, but it would be good for others	<p>"Other pharmacy majors need to understand this."</p> <p>"Thank you for making my class take this simulation. . . .many of them are extremely insensitive and ignorant to what it's like to grow up in hardship, and I hope this may have opened a few eyes."</p> <p>"This activity was very important not only for myself. I know some people at [university] are very privileged and may not see it and it may have hit home for them even more intensely than it hit home for me, coming from a poor, rural area."</p>
Awareness isn't enough	<p>"I wish there was more information provided on how to get involved in helping poor people."</p> <p>"I wish the assignment had given more insight into how one could make a difference for people enveloped in poverty."</p>
It's just a game (or it doesn't reflect reality)	<p>"Poverty education is crucial, but when it is turned into a game. . . people will not be able to truly understand what it is like to be poor."</p> <p>"Doing a simulation that forces me to make decisions about situations that I would never put myself into really does nothing for me."</p> <p>"My grandfather grew up on a farm with 12 brothers and sisters in a single bedroom cabin. . . . He ended up owning his own business and sending his children to universities. For some reason these simulated poverty scenarios seem to pale in comparison."</p>
Maybe some poor people are deserving, but most aren't	<p>"I realize there are a lot of people who work hard and just cannot keep up with the bills. . . I truly would love to help them . . . Unfortunately, that description does not pertain to a large majority of the poorer population in this country."</p> <p>"I enjoyed the activity but I'm not sure I believe that everyone on welfare is doing enough to become independent of government assistance."</p> <p>"This activity is very swayed toward the population of people in poverty that are working hard to get back on their feet. I am happy to help those individuals. However, I do not support the government taking our hard earned money to fund the rest of the poorer population . . ."</p>

reflection, it was difficult to justify the use of a control group for the purpose of research in an institution where teaching is the primary focus. This made it difficult to assess if the change was specifically a result of the game and not of other factors in the students' lives. Finally, the typical student in this study was a white, suburban female without direct experience of poverty; therefore, the results may not be generalizable to schools where that is not the case.

Although the UPPTS has been validated, only one other published study used it. This can be seen as a limitation; however, by using the scale, we have contributed to educational research by further validating this tool. These investigators plan to continue to study the use of the SPENT game in different undergraduate students and invite other faculty members to join the project. In addition, these researchers are also planning to compare these results with the use of the Community Action Poverty Simulation (CAPS), live poverty simulation.

CONCLUSIONS

The SPENT game is a low-stakes opportunity, requiring little instructor and student time, to address an important issue with undergraduate students entering service professions. It may be used in any preprofessional or professional phase of a health profession program, including pharmacy. It exposes students to the challenges faced by the working poor and allows them to consider structural vs individual nature of the situation. The authors encourage other faculty members to study the use of the SPENT game in multiple disciplines.

ACKNOWLEDGMENTS

The authors would like to acknowledge pharmacy student researchers, Rachel Fluery, Stephanie Samuels, Nick Meyer, Evan Kellar, Brandon Selvia, and Victor Navarro, who assisted with the project, as well as Bonnie Brown for her support in the preprofessional pharmacy curriculum. We would also like to acknowledge all the students who participated in the project.

REFERENCES

1. McKinney, Work-Urban Ministries of Durham. <http://mckinney.com/work/clients/urban-ministries-of-durham/spent-case-study>. Accessed April 23, 2015.
2. Urban Ministries of Durham, UMD Wins Awards for SPENT. <http://www.umdurham.org/news-and-events/news/umd-wins-awards-for-spent.html>. Accessed July 10, 2014.
3. DeNavas-Walt C, Proctor BD, Smith JC. US Census Bureau. Income, poverty, and health insurance coverage in the United

- States. <http://www.census.gov/prod/2012pubs/p60-243.pdf>. Published September 2012. Accessed June 18, 2013
4. Boylston MT, O'Rourke R. Second-degree Bachelor of science in nursing students' preconceived attitudes toward the homeless and poor: a pilot study. *J Prof Nurs*. 2013;29(5):309-317.
5. Brinker MR, Lund PJ, Barrack RL. Demographic biases of scoring instruments for the results of total knee arthroplasty. *J Bone Joint Surg Am*. 1997;79(6):858-865.
6. Van Ryn M, Burke J. The effect of patient race and socioeconomic status on physicians' perceptions of patients. *Soc Sci Med*. 2000;50(6):813-828
7. Cozzarelli C, Wilkinson AV, Tagler MJ. Attitudes toward the poor and attributions for poverty. *J Soc Iss*. 2001;57(2):207-227.
8. Noone J, Sideras S, Gubrud-Howe P, Voss H, Mathews LR. Influence of a poverty simulation on nursing student attitudes toward poverty. *J Nurs Educ*. 2012;51(11):617-622.
9. Patterson N, Hulton LJ. Enhancing nursing students' understanding of poverty through simulation. *Public Health Nurs*. 2011;29(2):143-151.
10. Weiss I. Factors associated with interest in working with the poor. *Families in Society*. 2006;87(3):385-394.
11. Yang K, Woome GR, Agbemenu K, Williams L. Relate better and judge less: poverty simulation promoting culturally competent care in community health nursing. *Nurse Educ Pract*. 2014;14(6):680-685.
12. Kihm H, Knapp S. The poverty simulator. *J Fam Consumer Sci Educ*. 2015;32(1):24-28.
13. Livingston SA. Simulation games and attitude change: attitudes toward the poor. Center for the Study of Social Organization of Schools, Johns Hopkins University. 1970;63(14).
14. Bruno R, Andrews A, Garvey B, et al. Videotaped patient stories: impact on medical students' attitudes regarding healthcare for the uninsured and underinsured. *PLoS ONE*. 2012;7(12):e51827.
15. Butler JT. Games and simulations: creative educational alternatives. *TechTrends*. 1988;33(4):20-23.
16. Kumar R, Lightner R. Games as an interactive classroom technique: perceptions of corporate trainers, college instructors and students. *Int J Teach Learn Higher Educ*. 2007;19(1):53-63.
17. Petrov M, Rogers GE. Using gaming to motivate today's technology-dependent students. *J STEM Teach Educ*. 2011;48(1):7-12.
18. Cain, J, Piascik P. Are serious games a good strategy for pharmacy education? *Am J Pharm Educ*. 2015;79(4):Article 47.
19. Atherton CR, Gemmel RJ, Haagenstad S, et al. Measuring attitudes toward poverty: a new scale. *Soc Work Res Abstr*. 1993;29(4):28-30.
20. Yun SH, Weaver RD. Development and validation of a short form of the attitude toward poverty scale. *Adv Soc Work*. 2010;11(2):174-187.
21. Blair KD, Brown M, Schoepflin T, Taylor DB. Validation of a tool to assess and track undergraduate attitudes toward those living in poverty. *Res Soc Work Pract*. 2014;24(4):448-461.
22. Accreditation Standards for Physician Assistant Education. 4th Ed. <http://www.arcpa.org/accreditation/standards-of-accreditation/>. Accessed November 16, 2015.
23. Portney LG, Watkins MP. *Foundations of Clinical Research: Applications to Practice*. 2nd Ed. Upper Saddle River NJ: Prentice Hall Health; 2000.